UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the amendment filed on 03/21/2007.

Claims 1-27 are amending and pending in the application.

Response to Arguments

2.   Applicants' arguments to the amending claims have been considered, but not persuasive.

- Claims 1-7 recite as a computer implement method. The claims as a whole are only address for resolving **a mathematical algorithm, i.e.,** determining a target type in an expression with an instruction (undefined operator). The specification of these claims, as admitted in the specification, supports only the calculation for resolving a target type. This fails to provide a real world result, and the claims rather a preemption of an abstract idea limited only calculating a target type. Accordingly, the claims cannot meet the statutory claims under 35 USC 101.

Similarly, Claims 10-16, and 19-25, despite of reciting a computer-readable storage medium containing computer and an operator resolution system for determining a target type, the claims 10-16, and 19-25 recite only a mathematic algorithm as in Claims 1-7.

Claims 10-16 recites computer-readable storage medium; however, the storage medium includes any type medium (in the specification). A statutory claim regarding to a medium should contain volatile and nonvolatile, as in the specification. Claims 19-25, also recite a system; however, the system within these claims is also read as a program per se.

- With regards to Claims 8-9, 17-18, and 26-27, the recitation in the claims also remains resolving **a mathematical algorithm.** The claims clearly manipulate an abstract idea within a mathematic algorithm without providing a real world value. The storage medium of Claims 17-18 is the same type to the storage medium in Claim 10-16. Claims 26-27 are also read as a program per se.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.   The claims 1-27 are rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter.

As per claim 1: Claim 1 recites a method in which it solely recites a determination on a set. The method as a whole is merely **to resolve a mathematical algorithm** (*determining a target type in an expression*) within a set, where the set contains elements (*types*). The determination of the set is on its element targets (*target type*) based on whether the set is empty or not (*if said first set is not empty; if said first set is empty*). The method fails to produce a practical, concrete, and tangible result. There is nothing to provide a real world value. The claim's scope as a whole is merely preempting an abstract idea of a mathematic algorithm. Accordingly, it is an abstract idea and is not statutory claim.

The limitations such as "*where said first set of types comprises all resulting types of all first variant expressions, where each of said first variant expressions comprises said target expression with at least one of said operands replaced using widening type conversion*", and

"*where said second set of types comprises all resulting types of all second variant expressions, where each of said second variant expressions comprises said target expression with at least one of said operands using at least one of widening and narrowing type conversion*", are only descriptive materials.

As per claims 2-7: Claims 2-7 are merely manipulating the elements within said set (type) including calculations per se. The claims fail to remedy the deficiencies of independent claim 1.

As per Claim 8: Claims 8 merely recites a mathematic algorithm as in the same manner in the claim 1, where claim 8, includes more than a set (*second set of types, third set of types*).

<u>As per Claim 9</u>: Claim 9 remains manipulating the elements within the three sets (types) including calculations per se. The claim fails to remedy the deficiencies of independent claim 8.

<u>As per Claims 10-16</u>: Claims 10-16 merely recite a computer-readable medium that stores a manipulation of a mathematic algorithm as described in Claims 1-7. Such a medium fails to meet the claimed statutory because the medium remains manipulating a mathematic algorithm; i.e. even included with a medium, it is only claiming mathematics per se.

<u>As per Claims 17-18</u>: Refer to the rationale as addressed top Claims 10-16. Claims 17-18 is merely a mathematic algorithm enclosed in a medium.

<u>Claims 19-25</u>: Refer to the rationale as addressed top Claims 1-7. Claims 19-25 is merely manipulating a mathematic algorithm. As a whole, the claims are only mathematic per se and computer program per se.

<u>Claims 26-27</u>: Claims 26-27 is merely manipulating a mathematic algorithm. As a whole, the claims are only mathematic per se and computer program per se.

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (571) 272-3706. The examiner can normally be reached on 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708.

The facsimile number for the organization where this application or proceeding is assigned is the Central Facsimile number **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTV
June 11, 2007

TED VO
PRIMARY EXAMINER